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ABSTRACT

The aim of this study was to determine the effects of ethnicity and course structure on academic achievement at the college level. The sample consisted of 298 undergraduate students: 65% white, 12.5% Asian, 9.5% Hispanic, 9% black, and 4% other racial/ethnic groups. Students were randomly assigned to one of two introductory sociology sections. The first consisted of a lecture-only method, the second was lecture plus the Learning Through Discussion (LTD) approach. The LTD method guided a discussion group from a simple to a more complex level of analysis. The final step required the group to assess behaviors which were productive or counter-productive to the group's achievement of a task. Results, obtained from a comparison of final examination scores, indicated that white students in LTD groups averaged over 7% higher on the final essay exam than did white students in the lecture-only class. Participation in LTD groups had no significant effect for the minority groups. Therefore, although the LTD method provided for the possibility of equality, it did not necessarily produce a structure fostering achievement for minorities. Also, no significant increase in factual knowledge, as determined from the objective part of the examination, occurred for minority groups, while whites in LTD groups scored nine percent less on factual recall than did whites in lecture-only groups. (KC)

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Effects of Ethnicity and Course Structure On Factual Learning and Critical Ability

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Effects of Ethnicity and Course Structure
On Factual Learning and Critical Ability

The promises of school integration along racial lines have been two-fold. Educators and liberal politicians have looked to school integration as a means of increasing academic acheivement among historically underacheiving minority group members and of increasing racial tolerance, especially among Whites. It has become apparent that neither of these goals has been acheived simply by desegrating a school plant or classroom while continuing to teach and evaluate students in traditional and differential ways.

Several studies have begun to help delineate theoretical and practical criteria through which academic acheivement and inter-racial liking could be increased in desegregated schools. Most of this work is based on expectation states theory (Cohen, 1970), which holds that White and minority students' status must be equalized in order to alter both the expectations and performance of minority students in social situations in which both White and minority students are present. The theory asserts that race has a major effect in determining the status of interactants, which determines their expectations of one another. Differential expectations are thought to effect both quality and quantity of attempts to learn in school.

Interdependent Learning Groups

One method of equalizing this status differential, and its antecedent set of expectations, which has resulted in positive outcomes is the inter-racial interdependent learning group. Slavin's studies (1977, 1978) of seventh grade classrooms which used team learning showed significant differences in mutual concern, cross-racial attraction, and self-esteem among students who used a team learning approach and those who were taught in traditional ways, with favorable results for the team learning condition. Other researchers (Lucker, Rosenfield, Sikes, and Aronson, 1976) found that, in integrated elementary classrooms which used "jigsaw groups" in which each student's contribution was necessary for the group's solution of its common problem, minority students acheived significantly higher test scores than did their minority counterparts in traditional desegrated classrooms. They also found that Anglo students did not differ significantly in academic performance based on jigsaw or non-jigsaw condition. The Lucker findings supported those of Slavin in the sociometric and self-esteem areas for both White and minority students. The findings of Weigel, Wiser, and Cook (in press) suggest that the differences between interdependent and traditional classrooms are not due to prolonged and intense interaction which characterize elementary school classrooms. They found that in both junior and senior high school classes (in which students spend considerably

less time together), there were significant differences between integrated classes which used group learning and those which were organized more traditionally on the variables of cross-ethnic helping, respect, and liking for Mexican-Americans among Whites.

Interdependent Learning at the College Level

College level studies which explore relationships between classroom structure, cross-racial attitude change, and performance of minority students have not been made. However, a few studies have been done on the relationship between academic performance and group discussion methods of learning. Bloom's (1954) research on group discussion resulted in the finding that, while discussion was inferior to lecture when it came to learning and remembering factual information, discussion had significantly greater impact when learning was defined as manipulation of subjective material. Hill's studies of the Learning Through Discussion (LTD) method (Gutzmer and Hill, 1973; Hill, 1977) support Bloom's findings. Hill found that that, although no significant differences were found in academic acheivement as measured by objective tests, LTD groups were characterized by steady increases in those interactional behaviors which are typical of successful problem-solving techniques.

This study is an attempt to test the relationships between interdependent inter-racial learning, academic acheivement,

and inter-racial attraction among a college population. Academic acheivement is divided into factual recall and critical thinking, defined as the ability to synthesize and apply information and concepts to a new problem or situation.

Hypotheses

1) White students who are members of LTD groups will perform significantly better on tests which measure critical thinking than will White students who attend lecture only.

2) Minority students who are members of LTD groups will perform significantly better on tests which measure critical thinking than will minority students who attend lecture only.

3) White students assigned to LTD groups will not perform significantly better on tests of factual recall than will White students who attend lectures only.

4) Minority students assigned to LTD groups will perform significantly better on tests of factual recall than will minority students who attend lectures only.

5)White students assigned to LTD groups will report making significantly more cross-race friends than will White students who attend lecture only.

6) Minority students assigned to LTD groups will report making significantly more cross-race friends than will White students who attend lecture only.

Sample and Assignment to Condition

118 male and 180 female U.C.L.A. undergraduate students enrolled in an introductory sociology course were randomly assigned to one of two conditions, either a lecture-only condition of a lecture-plus-LTD condition. The class composition was 65% White, 12.5% Asian, 9.5% Hispanic, 9% Black, and 4% were members of other ethnic/racial groups. More than half of the class was made up of freshmen, with three-quarters falling in the age range of eighteen to twenty. Most students were majoring in social sceinces or had not yet declared a major. Stratified random assignment was used with regard to race , both in assignment to condition and to a particular group within the LTD condition. Each of the LTD groups assumed the approximate proportion of the class' racial distribution. Each LTD group was assigned five White, two Asian, one Hispanic, and one Black students.

Design

In order to maximize differences in dependent variables without concerns that the effects were caused by factors other than assignment to condition, the structure of the class and of examination grading were held constant. The professor was blind to the condition of students, as were teaching assistants. All students attended two one and one-half hour lectures per week in a common meeting room. Students took exams together, for which common study questions were provided

in advance. In addition, graders were blind to students' conditions and to the hypotheses of the study. Besides lectures and optional review sessions given by teaching assistants, which were available to all students, students in the experimental condition were assigned to one of eight LTD groups per week and were required to meet for one hour and fifteen minutes each session. As incentive to attend and participate regularly, experimental students received fifty per cent of their grades on the basis of weekly participation. LTD group leaders awarded grades on the basis of students' contributions to the group task, which was defined as group-wide understanding, synthesis, and application of the week's reading, and as evaluation and improvement of group functioning. Individual displays of knowledge and insightfulness were discouraged when they served as display only and not as collaborative group work. The reading which was the topic for discussion was the same reading which the entire class was assigned for the week. Because of the emphasis upon and reward for contributions which further the group's rather than an individual's goals, it was assumed that group members became dependent upon one another for information, feedback, and as collaborators in their learning.

The LTD Method

The Learning Through Discussion groups which we used were

patterned after Hill's (1977) groups, which center around a Group Cognitive Map. The Group Cognitive Map prescribes a development of group behaviors which begin at a simple level of conceptualization and move towards more complex forms. The nine steps of Hill's LTD Cognitive Map are:

1) definition of concepts and terms,
2) statement of the author's main theme,
3) list of the major themes and subtopics of the article read,
4) allocation of time for the remainder of the discussion,
5) elaboration of the major themes and subtopics,
6) integration of material with other knowledge and perspectives,
7) application of material to the students' experiences,
8) evaluation of the author's presentation,
9) evaluation of the group and individual performance.

Each step guides the group to a more complex cognitive level of analysis, with the latter stages directing the group as a whole to practice those techniques which are characteristic of critical thinking.

Step nine, evaluation of the group and individual performance, mandates that the group assess and learn to specify those behaviors which are productive and those which are counter-productive to the group's acheivement of the task. It is the step in which normative development can be made explicit. It is important that the members begin to share a commitment to using the group to enhance their collective learning, rather

than as a social hour our an encounter session. In its early stages, the group is usually still unsure of the boundaries of the group evaluation step, as it struggles to develop its own culture and norms.

In order to foster norms of mutual support, commitment to learning as a group, and continued group development, our research has shown that it is necessary to provide a facilitator who has been successful with and is skilled in using the LTD method. The provision of an advanced undergraduate student who meets the above criteria and who is trained and supervised has proven to increase the likelihood that the groups develop a structure which promotes both critical abilities and interdependence.

Measurement of Dependent Variables

As mentioned above, the criteria for critical intellectual ability is operationalized as the ability to integrate, apply, and evaluate material in the lectures and readings. This is measured by the students' scores on the essay portion of the final examination. Factual recall is measured by as the students' scores on the objective portion of the final examination. Because of the large number of students enrolled in the class, the customary socio metric ranking which ask students to give the names of persons whom they consider to be friends were not appropriate. Friendship patterns

were instead determined by administering a questionnaire to students at the end of the course asking them, "With how many students of a different race who you have met in this class do you you expect to have social contact after the end of the quarter?" Absolute numbers were used for comparison of conditions. Two-tailed t-tests (Blalock, 1972) were used in comparing both sociometric and acheivement measures.

Findings and Discussion

A comparison of final exam essay scores, used as the measure of differences of critical intellectual ability between control and experimental conditions, yielded no significant main effect. However, when race was taken into account, the experimental manipulation can be seen to have had important consequences. Although participation in LTD groups had no significant effects for any of the three identified minority groups, assigned condition produced a high level of significant difference on final essay grades among White students (see Table 1) White students who participated in LTD groups received an average of over seven percent higher scores on the final essay exam than did Whites in the lecture-only condition.

Table 1 here

While this finding was contrary to the hypothesized effect of such participation, the combination of Whites'

increased acheivement and no difference in minority acheivement can be taken to support Cohen's (1970) theory that interdependence can only be said to be acheived in an interactional situation which is characterized by equal status among group members. While the LTD method provides for the possibility of status equality on the basis of equal contribution to the group task, it does not necessarily produce a structure in which all members are evaluated as equals. This is especially true in the situation that diffuse status characteristics, such as race, are coupled with a task which requires evaluation of members' verbal skills in a college setting. While minority group members may be highly skilled in the grammar of their own communities, a predominantly White group in a predominantly White university may successfully push for middle class White English as the currency of evaluation. Unlike Aronson's (Lucker, Rosenfield, Sikes, and Aronson, 1976) jigsaw groups or those of Slavin (1977, 1978) , which structurally changed the status of their members to insure equality, the LTD groups in this study seemed to have created an evaluative atmosphere which served to reinforce the diffuse status characteristics which were present at the onset of the first group. The LTD groups, while creating a setting in which interdependent learning could go on for White students, merely replicated the status differences present in the lecture-only condition. Rather than refuting the theory on which the study

is based, these findings seem to add support and further refinement to the expectation states theory, while providing an important critique of our operationalization of it.

The findings are important for what the study tells us about the positive potential which the LTD group has for high or equal status members. It does seem to promote an increase in critical thinking ability. If one could design a way in which to equalize the status of all group members without removing the essential ninth step of group evaluation, the group approach might become an important means for acheivement of educational and social equality among students. At least for White students, Bloom's and Hill's findings are consistently supported.

As with critical thinking, there is no significant main effect by condition on the variable of factual recall. Table 2 illustrates a finding which is in direct opposition to our hypotheses about experimental effects on minority acheivement on objective measures of factual recall. While assignment to condition makes no difference for any minority group on this dependent variable, assignment of Whites to the LTD condition significantly reduces their objective final exam score. This is a reduction of over nine percent in the scores acheived by Whites in the control condition.

These findings must be explained in two parts. The failure

Table 2 here

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of the manipulation to yield significant differences for minority students can be explained in the same way as for critical thinking ability. That is, the group condition failed to structurally alter the status relations between Whites and minorities. A status differential remained between Whites and each minority group, with Whites perceived as more capable than minorities in performing school-relevant tasks.

The production of lower objective scores by assignment of Whites to LTD groups is more difficult to interpret. Since we do not have data on the actual attendance of LTD group members at either teaching assistants' review sessions of the professor's lectures, we cannot determine whether LTD group members attended these activities less frequently than did lecture-only students, although this assertion is plausible. Neither do we have data on the development of individual or group norms which devalue the lecture, the reviews, or the means which lecture-only students used to study for the objective portion of the examinations. It is possible that the LTD groups developed normative orientations which emphasized the development of critical thinking at the expense of recall of facts. It is impossible to support or reject any of these interpretations on the basis of the available data.

Table 3 here

A comparison was done of students' reports of the number of lasting friendships which they made with students of another race during the class, by condition. Table 3 shows that there is neither a significant main effect nor significant effects for any racial group. There are differences between the number of friendships reported by each racial group regardless of condition, however. Blacks report making an average of between 2.333 and 2.8 friends of other races, Asians report between 2.0 and 2.429, Hispanics between .111 and .75, and Whites between .406 and .524 cross-racial friendships.

While this study does not include data which is useful in interpreting these data, the differences bear examination. Potential interpretations include cultural differences in the meaning of key words used in the question, over- or under-reporting of liking for others or assessments of one's own popularity, or actual differences by race in friendship patterns. The importance of accurate interpretation of these results lies in their centrality to both status equalization and cross-racial attraction. While there is a difference between inter-racial attitudes in a work setting and social relations outside of work settings, there is most probably an important overlap between the two.

Summary

The present study is an attempt to examine the effects

of a structured interdependent learning method on cross-racial attitudes and minority acheivement at the college level. The findings support the proposition that status equalization between Whites and minorities is an essential factor in increasing minority academic acheivement. The results further indicate both the effectiveness of the Learning Through Discussion method for high status group members in improving their ability to think critically and the potential negative consequences of this method on learning which is primarily factual recall. The experimental manipulation seems to have have no measurable effect on minority students' acheivement as measured by either essay or objective examination. While the LTD method may provide the opportunity for status equalization, it by no means insures equalization.

The findings also indicate that friendship patterns across races were not altered by assignment to the lecture-plus-LTD condition. There were differences in cross-racial friendships reported by race without regard to condition membership, however. While these differences bear exploration, the present study did not shed light on the reasons for these differences.

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Table 1

Differences in Critical Intellectual Ability by Condition and Race

Race	Condition	$\bar{X}$	s^2	t-value	df	level of significance
White	LTD	26.303	4.332	2.922	119	0.01
	Lecture	24.489	10.888			
Black	LTD	25.4	1.056	1.119	11	ns
	Lecture	24.25	3.688			
Hispanic	LTD	24.57	6.531	0.381	13	ns
	Lecture	25.0	2.0			
Asian	LTD	27.111	3.654	0.727	15	ns
	Lecture	26.5	1.5			
Main Effect	LTD	26.314	5.117	1.190	175*	ns
	Lecture	25.738	9.737			

* The df for main effect includes students in racial categories other than those mentioned above.

Table 2

Differences in Factual Recall by Condition and Race

Race	Condition	$\bar{X}$	s^2	t-value	df	level of significance
White	LTD	17.267	4.796	4.3275	113	0.001
	Lecture	19.024	3.127			
Black	LTD	18.2	1.36	0.702	11	ns
	Lecture	17.625	1.985			
Hispanic	LTD	18.429	10.613	0.635	14	ns
	Lecture	19.222	1.29			
Asian	LTD	18.111	0.767	0.981	15	ns
	Lecture	17.5	2.25			
Main Effect	LTD	17.471	4.445	1.571	162*	ns
	Lecture	17.903	1.805			

* The df for main effect includes students in racial categories other than those mentioned above.

Table 3

Differences in Cross-Racial Friendships by Condition and Race

Race	Condition	$\bar{X}$	s^2	t-value	df	level of significance
White	LTD	0.524	0.726	0.381	83	ns
	Lecture	0.406	1.73			
Black	LTD	2.333	1.536	0.437	9	ns
	Lecture	2.8	3.76			
Hispanic	LTD	0.75	0.938	1.063	11	ns
	Lecture	0.111	3.864			
Asian	LTD	2.429	3.102	0.3	10	ns
	Lecture	2.0	7.6			
Main Effect	LTD	1.237	2.023	1.724	119*	ns
	Lecture	0.675	3.038			

* The df for main effect includes students in racial categories other than those mentioned above.